

## Part E: Course Assessment

### Guidelines for Accomplishing the Course Assessment Package of the Course

#### I. Table of Specifications (ToS)

The purpose of a Table of Specifications is to **identify the achievement domains being measured** and to ensure that a **fair and representative sample of questions/exercises/scenarios** appear on the test. It provides the instructor/faculty with evidence that a test has content validity, that it covers what should be covered.

- a. **Cognitive learning** refers to the mental skills (**knowledge**) developed in the learner during the course delivery, usually under the lecture component of the course, that should be assessed for the attainment of the learning outcome (formative assessment) and course outcome (summative assessment). For purposes of providing adequate number of valid test times, it is recommended that at least **3 parallel valid test items** should be made to assess every learning and course outcome. This will cover the assessment periods (prelim, midterm, final) the MHEI may have for its own assessment system.

**Parallel test items** mean that the purpose of the test items is the same even if the types of test are different. Valid test item means that the test item has satisfactorily met the desired content (what the test item is about) and the way how it is constructed meets its purpose (objective) and or desired outcome.

For guidance on the various categories/levels of cognitive learning, refer to the **Taxonomies of Learning Outcomes (Annex A)**.

- b. **Psychomotor learning** refers to the **development of the manual or physical skills/movement, coordination, and ability to use the motor skill** areas after doing an assigned task. These areas of skill development should be assessed after allowing the students to undergo ample of exercises/activities/practices/scenarios (formative assessment) so as to develop the desired skill that is stated in the learning/course outcome. Development of these skills requires **practice** and is measured, for example, in terms of **speed, precision, distance, procedures, or techniques in execution**. For purposes of providing enough number of exercises/activities /scenarios for practical/performance assessment, it is recommended to develop/construct **at least 2 sets for summative assessment per learning/course outcome**

For guidance on the various categories, from simplest to the most complex, of psychomotor learning, refer to the **Taxonomies of Learning Outcomes (Annex A)**.

- c. **Affective learning** refers to the growth observed in the **feelings, emotions, attitude, and behavior** of the learner. It includes the manner in which the learner deals with things emotionally such as feelings, values, appreciation, enthusiasms, motivations, and attitudes. Aside from using situational and scenario analysis, assessment for affective learning can also be carried out using the materials for the assessment of cognitive and psychomotor learning. In this latter assessment tools, the rubric to be used in assessing the affective learning as well as the observation sheet will be the sources for assessing the results of affective learning.

For guidance on the various categories, from simplest behavior to the most complex, of affective learning, refer to the **Taxonomies of Learning Outcomes (Annex A)**.

For **templates of ToS per learning domain**, refer to **Annexes B, C, and D**. For instructions on how to fill out the templates, refer to **Annexes B-1, C-1, and D-1**, respectively.

## II. **Table of Outcome Assessment (TOA)**

- a. Cognitive
- b. Psychomotor
- c. Affective

## III. **Master Questionnaire**

This refers to the **compilation of various sets of valid test items per learning and course outcome** where test items for specific purposes can be extracted/selected for **formative and or summative assessment of cognitive learning**. Such test items may be categorized as any of the following, depending on the learning/course outcome that is being assessed. The master questionnaire should be accompanied by its **answer key**.

- a. Objective tests
- b. Essay tests (use rubric for scoring)
- c. Calculations/Computations/Word problems

For the purpose of providing enough number of valid test items after **item analysis** (at least 3 test items per learning/course outcome), it is recommended for MHEI's test developers to formulate test items **more than the number targeted** such as twice that number ( $2 \times 3 = 6$  test items per learning/course outcome, may be of different types of test).

For proper way of constructing the test items according to type and aligned with the learning/course outcome to be assessed, refer to the **Pointers in Writing Test Items from the IMO Model Course 3.12**.

- IV.** **Performance/Practical Assessment**, also known as **authentic assessment**, is a form of testing that requires students to perform a task rather than select an answer from a ready-made list or options. It involves the demonstration and application of knowledge, skills, and work habits through the performance of a required task that is consistent/aligned with the learning/course outcome.

Assessing the outcome of the Performance/Practical Test uses a **rubric** in scoring. Such rubric should be **valid** in the sense that it shows/covers the criteria and metrics indicative of the learning/course outcome.

For sampling purposes of **Performance/Practical Test/Assessment**, refer to **Annex E for the template**, and for sampling of a **rubric**, refer to **Annexes F and F-1**.

Take note that the assessment material used for the **Performance Assessment can also be used for assessing the Affective Learning** of the student. Hence, **2 rubrics** should be made available during the assessment: one (1) for Performance Assessment and the 2<sup>nd</sup> is for the **Behavioral Assessment**. Sample and template for this rubric is found in **Annexes G and G-1**

- V.** **Oral Assessment** is a direct means of assessing student's learning outcomes by allowing him to speak so he can provide evidence of his learning. This type of assessment does not usually have a structured list of questions. Assessor asks questions and request responses depending on the learning/course outcome to be orally assessed and on the circumstances (as probing questions may be necessary).

Oral assessment may be done through any of the following **techniques (the choice should be aligned with the learning/course outcome):**

1. Student's oral presentation of his work output from the learning acquired
2. Performance in a debate
3. Presentation of a case work/analysis
4. Answering questions orally raised by Assessor, Instructor/Faculty, or Peers



Similar to Performance Assessment, a rubric will also be used in measuring the results of Oral Assessment. For sampling of **Oral Assessment rubric**, refer to **Annex H and H-1** for the template.

**Take note that the assessment material used for the Oral Assessment can also be used for assessing the Affective Learning of the student.** Hence in such a case, 2 rubrics can be prepared, i.e. for oral assessment and behavioral assessment.

- VI.** **Assessment Guide/Plan** is a document that will be used by the Assessor in preparing for and conduct of assessment. This document needs to be developed as it specifies the procedures/methods and criteria to be used in the assessment, depending on the learning/course outcome to be assessed, and the deployment of principles of good assessment.

For sampling of an **Assessment Guide/Plan**, refer to **Annexes I and I-1** for the template.

- VII.** **Assessment Standard** is a document that contains a set of standards for evaluation/judgment of assessment results and related guidelines approved by CHED-MARINA for accuracy and consistency with the required and acceptable assessment practices and passing standard.

For sampling of **Assessment Standard**, refer to the **STCW Table of Competences**.

Prepared by:

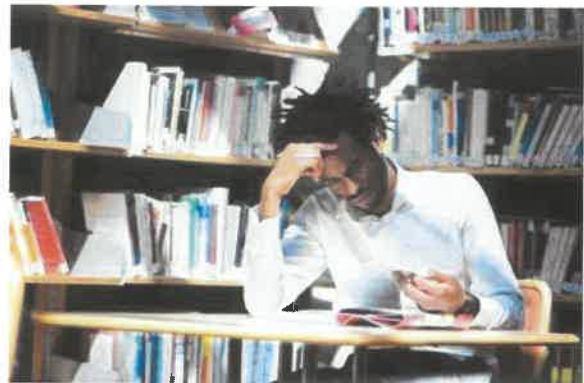
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2021 Nov 05**



## TAXONOMIES OF LEARNING OUTCOMES

### COGNITIVE DOMAIN

The cognitive domain involves **knowledge and the development of intellectual skills** (Bloom, 1956; Bloom, et al, 1990). This includes the recall or recognition of specific facts, procedural patterns, and concepts that serve in the development of intellectual abilities and skills. There are six major categories of cognitive processes, which are listed in order below, starting from the simplest to the most complex. The categories can be thought of as degrees of difficulties. That is, the first ones must normally be mastered before the next one can take place.



Category	Example and Key Words (verbs)
<b>Remembering:</b> Recall or retrieve previous learned information.	<b>Examples:</b> Recite a policy. Quote prices from memory to a customer. Knows the safety rules.  <b>Key Words:</b> defines, describes, identifies, knows, labels, lists, matches, names, outlines, recalls, recognizes, reproduces, selects, states.
<b>Understanding:</b> Comprehending the meaning, interpolation, and interpretation of instructions	<b>Examples:</b> Rewrites the principles of test writing. Explain in one's own words the steps for performing a complex task. Translates an equation into a computer spreadsheet.

and problems. State a problem in one's own words.	<p><b>Key Words:</b> comprehends, converts, defends, distinguishes, estimates, explains, extends, generalizes, gives an example, infers, interprets, paraphrases, predicts, rewrites, summarizes, translates.</p>
<p><b>Applying:</b> Use a concept in a new situation or unprompted use of an abstraction. Applies what was learned in the classroom into novel situations in the work place.</p>	<p><b>Examples:</b> Use a manual to calculate an employee's vacation time. Apply laws of statistics to evaluate the reliability of a written test.</p> <p><b>Key Words:</b> applies, changes, computes, constructs, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses.</p>
<p><b>Analyzing:</b> Separates material or concepts into component parts so that its organizational structure may be understood. Distinguishes between facts and inferences.</p>	<p><b>Examples:</b> Troubleshoot a piece of equipment by using logical deduction. Recognize logical fallacies in reasoning. Gathers information from a department and selects the required tasks for training.</p> <p><b>Key Words:</b> analyzes, breaks down, compares, contrasts, diagrams, deconstructs, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, relates, selects, separates.</p>

<p><b>Evaluating:</b> Make judgments about the value of ideas or materials.</p>	<p><b>Examples:</b> Select the most effective solution. Hire the most qualified candidate. Explain and justify a new budget.</p> <p><b>Key Words:</b> appraises, compares, concludes, contrasts, criticizes, critiques, defends, describes, discriminates, evaluates, explains, interprets, justifies, relates, summarizes, supports.</p>
<p><b>Creating:</b> Builds a structure or pattern from diverse elements. Put parts together to form a whole, with emphasis on creating a new meaning or structure.</p>	<p><b>Examples:</b> Write a company operations or process manual. Design a machine to perform a specific task. Integrates training from several sources to solve a problem. Revises and processes to improve the outcome.</p> <p><b>Key Words:</b> categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes.</p>

## PSYCHOMOTOR DOMAIN

The psychomotor domain (Simpson, 1972) includes **physical movement, coordination, and use of the motor-skill areas.** Development of these skills **requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution.** The seven major categories are listed from the simplest behavior to the most complex:



Category	Example and Key Words (verbs)
<b>Perception (awareness):</b> The ability to use sensory cues to guide motor activity. This ranges from sensory stimulation, through cue selection, to translation.	<p><b>Examples:</b> Detects non-verbal communication cues. Estimate where a ball will land after it is thrown and then moving to the correct location to catch the ball. Adjusts heat of stove to correct temperature by smell and taste of food. Adjusts the height of the forks on a forklift by comparing where the forks are in relation to the pallet.</p> <p><b>Key Words:</b> chooses, describes, detects, differentiates, distinguishes, identifies, isolates, relates, selects.</p>
<b>Set:</b> Readiness to act. It includes mental, physical, and emotional sets. These three sets are dispositions that	<p><b>Examples:</b> Knows and acts upon a sequence of steps in a manufacturing process. Recognize one's abilities and limitations.</p>

<p>predetermine a person's response to different situations (sometimes called mindsets).</p>	<p>Shows desire to learn a new process (motivation). NOTE: This subdivision of Psychomotor is closely related with the "Responding to phenomena" subdivision of the Affective domain.</p> <p><b>Key Words:</b> begins, displays, explains, moves, proceeds, reacts, shows, states, volunteers.</p>
<p><b>Guided Response:</b> The early stages in learning a complex skill that includes imitation and trial and error. Adequacy of performance is achieved by practicing.</p>	<p><b>Examples:</b> Performs a mathematical equation as demonstrated. Follows instructions to build a model. Responds hand-signals of instructor while learning to operate a forklift.</p> <p><b>Key Words:</b> copies, traces, follows, react, reproduce, responds</p>
<p><b>Mechanism (basic proficiency):</b> This is the intermediate stage in learning a complex skill. Learned responses have become habitual and the movements can be performed with some confidence and proficiency.</p>	<p><b>Examples:</b> Use a personal computer. Repair a leaking faucet. Drive a car.</p> <p><b>Key Words:</b> assembles, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches.</p>

<p><b>Complex Overt Response (Expert):</b> The skillful performance of motor acts that involve complex movement patterns. Proficiency is indicated by a quick, accurate, and highly coordinated performance, requiring a minimum of energy. This category includes performing without hesitation, and automatic performance. For example, players are often utter sounds of satisfaction or expletives as soon as they hit a tennis ball or throw a football, because they can tell by the feel of the act what the result will produce.</p>	<p><b>Examples:</b> Maneuvers a car into a tight parallel parking spot. Operates a computer quickly and accurately. Displays competence while playing the piano.</p> <p><b>Key Words:</b> assembles, builds, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches.</p> <p><b>NOTE:</b> The Key Words are the same as Mechanism, but will have adverbs or adjectives that indicate that the performance is quicker, better, more accurate, etc.</p>
<p><b>Adaptation:</b> Skills are well developed and the individual can modify movement patterns to fit special requirements.</p>	<p><b>Examples:</b> Responds effectively to unexpected experiences. Modifies instruction to meet the needs of the learners. Perform a task with a machine that it was not originally intended to do (machine is not damaged and there is no danger in performing the new task).</p> <p><b>Key Words:</b> adapts, alters, changes, rearranges, reorganizes, revises, varies.</p>

<p><b>Origination:</b> Creating new movement patterns to fit a particular situation or specific problem. Learning outcomes emphasize creativity based upon highly developed skills.</p>	<p><b>Examples:</b> Constructs a new theory. Develops a new and comprehensive training programming. Creates a new gymnastic routine.</p> <p><b>Key Words:</b> arranges, builds, combines, composes, constructs, creates, designs, initiate, makes, originates.</p>
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## AFFECTIVE DOMAIN



The affective domain (Krathwohl, Bloom, Masia, 1973) includes the **manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes.** The five major categories are listed from the simplest behavior to the most complex:

Category	Example and Key Words (verbs)
<b>Receiving Phenomena:</b> Awareness, willingness to hear, selected attention.	<b>Examples:</b> Listen to others with respect. Listen for and remember the name of newly introduced people.  <b>Key Words:</b> asks, chooses, describes, follows, gives, holds, identifies, locates, names, points to, selects, sits, erects, replies, uses.
<b>Responding to Phenomena:</b> Active participation on the part of the learners. Attends and reacts to a particular phenomenon. Learning outcomes may emphasize compliance in responding, willingness to respond, or satisfaction in responding (motivation).	<b>Examples:</b> Participates in class discussions. Gives a presentation. Questions new ideals, concepts, models, etc. in order to fully understand them. Know the safety rules and practices them.  <b>Key Words:</b> answers, assists, aids, complies, conforms, discusses, greets, helps, labels, performs, practices, presents, reads, recites, reports, selects, tells, writes.
<b>Valuing:</b> The worth or value a person attaches to a particular object, phenomenon, or behavior. This ranges from simple acceptance to the more complex state of commitment. Valuing is based on the internalization of a set of specified values, while clues to these values are	<b>Examples:</b> Demonstrates belief in the democratic process. Is sensitive towards individual and cultural differences (value diversity). Shows the ability to solve problems. Proposes a plan to social improvement and follows through with commitment. Informs

<p>expressed in the learner's overt behavior and are often identifiable.</p>	<p>management on matters that one feels strongly about.</p> <p><b>Key Words:</b> completes, demonstrates, differentiates, explains, follows, forms, initiates, invites, joins, justifies, proposes, reads, reports, selects, shares, studies, works.</p>
<p><b>Organization:</b> Organizes values into priorities by contrasting different values, resolving conflicts between them, and creating an unique value system. The emphasis is on comparing, relating, and synthesizing values.</p>	<p><b>Examples:</b> Recognizes the need for balance between freedom and responsible behavior. Accepts responsibility for one's behavior. Explains the role of systematic planning in solving problems. Accepts professional ethical standards. Creates a life plan in harmony with abilities, interests, and beliefs. Prioritizes time effectively to meet the needs of the organization, family, and self.</p> <p><b>Key Words:</b> adheres, alters, arranges, combines, compares, completes, defends, explains, formulates, generalizes, identifies, integrates, modifies, orders, organizes, prepares, relates, synthesizes.</p>
<p><b>Internalizing values (characterization):</b> Has a value system that controls their behavior. The behavior is</p>	<p><b>Examples:</b> Shows self-reliance when working independently. Cooperates in group activities (displays teamwork). Uses</p>

pervasive, consistent, predictable, and most importantly, characteristic of the learner. Instructional objectives are concerned with the student's general patterns of adjustment (personal, social, emotional).

an objective approach in problem solving. Displays a professional commitment to ethical practice on a daily basis. Revises judgments and changes behavior in light of new evidence. Values people for what they are, not how they look.

**Key Words:** acts, discriminates, displays, influences, listens, modifies, performs, practices, proposes, qualifies, questions, revises, serves, solves, verifies.

**TABLE OF SPECIFICATIONS FOR COGNITIVE LEARNING OF THE COURSE:**

Competence

### Caine Outcome 1:

### **Course Outcome 2:**



COGNITIVE DOMAIN OF LEARNING

Source: Blooms et al.

TABLE OF SPECIFICATIONS FOR INTELLECTUAL DEVELOPMENT OF THE COURSE

'Connected'

Course Outcome 1:

## Course Outcome 2:

INSTRUCTIONS.

1. Enter the required data on the title of the course, the competence/s to be developed in the course (Ref: Part II. DTS), and Course Outcome/s (Ref: Part II. DTS)
  2. Fill out the columns and rows of the ToS. If the course has only one (1) CO, you may remove the Course Outcome in the table since the said CO is already written above the table.

2.1 Ensure that you **write the CO that corresponds to/is being addressed by every LO** (Ref: Part II. DTS).

2.2 Write the **LO**, begin it with its **active verb** (Ref: Part II. DTS). LOs must have been aligned with the CO in the DTS as they are meant to build up the learning that will enable the student to realize the CO.





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|--|---|--|--|---|--|--|--|
| 2.3 Write the number of the test items you are planning to develop/construct <b>under the indicator/criterion/ category of intellectual development that will measure the LO</b> . As seen in the sample above, there are 5 test questions that will be made: 2 are under "Applying" the formula of speed, and 3 questions will be made on "Analyzing" word problems to compute for the speed of the ship. | 2.4 Remember that Outcomes-Based assessment will always be focused on the <b>results as indicated in the LO</b> . Such test items may fall under "Applying to Creating." You may include in your ToS the test items for formative assessment which usually are falling under "Remembering and Understanding." | 2.5 It is best that you assign <b>at least 3 test items for every LO and every possible indicator of intellectual development targeted by the LO</b> . This will enable you to assess the student's <b>consistency of learning</b> across a certain period of academic instruction and assessment such as prelim, midterm, and final period. | 2.6 The " <b>Total No. of Items</b> " refers to the sum of the test questions made per LO across all indicators of intellectual development. | 2.7 The " <b>% of Items</b> " represents the ratio of the total test items of a particular LO overall the total test items of the course. Hence, it is computed by simply dividing the total no. of test items of the LO by the total no. of all test items of the course, multiplied by 100. | 3. Take note that the no. of indicative hours written in the DTS is written as "indicative" as this no. of hour/s to be spent in teaching the topic/lesson <b>depends on the learning capacity and ability of the students</b> . Hence, it is not being used as a metric to determine the no.of test items to be given in a test. Bear in mind that <b>the test should be able to assess ALL the LOs and COs (if applicable) covered within the period of assessment</b> such as prelim, midterm, final. | 4. An assessment that follows the principles of OBE should cover the <b>intellectual development indicative of outcomes or results</b> . | 5. When constructing/developing/writing the test items, <b>be guided by the ToS</b> which has been <b>made aligned with the COs and LOs of the course</b> . The <b>revised Bloom's Taxonomy</b> (refer to "Taxonomies of Learning Outcomes" attached to this ToS) can guide you in choosing the <b>active verb/s to be used under each indicator shown in the sampled ToS for Intellectual Development</b> . |
|--|---|--|--|---|--|--|--|



## TABLE OF SPECIFICATIONS FOR PSYCHOMOTOR LEARNING OF THE COURSE:

## Competence:

**Course Outcome 1:**  
**Course Outcome 2:**



PSYCHOMOTOR DOMAIN OF LEARNING

Source: Simpson, 1972

#### TABLE OF SPECIFICATIONS FOR SKILL DEVELOPMENT OF THE COURSE:

### **Competence:**

**Competence:**  
**Course Outcome 1:**  
**Course Outcome 2:**

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1. Ensure the required skills on the course outline are covered in the course material, and the outcomes/s are covered in the course material.

**Outcome/s that is focused on skill development** (Ref: Part II. DTS)

2.1 Ensure that you **write the CO that corresponds to/being addressed by every LO that is focused on skill development** (Ref: Part II. DTS)

2.2 Fill out the columns and rows of the ToS. If the course has only one (1) CO, you may remove the Course Outcome in the table since the said CO is already written above the table.

2.3 Write the number/code of the Assessment Activity/Exercise/Scenario that you are planning to develop/construct under the indicators/categories/criteria of skill development that you have chosen to measure the LO. After the table, list down the same



*Annex G*  
*(Course Outcomes assessment and Assessment Tools)*

number/code of the Assessment Activity/Exercise/Scenario with its descriptive title. This title should be reflective of the LO that is intended to be assessed/measured. The format of the Code depends on the QSS of the MHEI.



Annex G  
(Course Outcomes assessment and Assessment Tools)

2.4 Remember that Outcomes-Based assessment will always be focused on the <b>results as indicated in the LO</b> . You may refer to the Psychomotor Domain of the Taxonomies of Learning Outcomes attached to this ToS for your guidance on the meaning and coverage of the indicators/categories/criteria shown on the table above.
2.5 It is best that you assign <b>at least 3 Activities/Exercises/Scenarios for every LO and every possible indicator of skill development that can measure the LO</b> . This will enable you to assess the student's <b>consistency of learning</b> across a certain period of laboratory instruction and assessment such as prelim, midterm, and final period.
2.6 The " <b>Total No. of Activities</b> " refers to the sum of the activities/exercises/ scenarios made per LO across the covered indicators/categories/criteria of skill development.
2.7 The " <b>% of Activities</b> " represents the ratio of the total no. of activities across all indicators/categories/criteria of a particular LO overall the total no. of Activities/Exercises/Scenarios of the course. Hence, it is computed by simply dividing the total no. of activities of the LO by the total no. of all activities of the course, multiplied by 100.
3. Take note that the no. of indicative hours written in the DIS is written as "indicative " as this no. of hour/s to be spent in conducting the activity/exercise <b>depends on the learning capacity and ability of the students and the available quantity of facility, tools, or materials for the activity</b> . Hence, it is not being used as a metric to determine the no.of activities/exercises/scenarios to be given in the practical/performance test. Bear in mind that <b>the practical/performance test should be able to assess All the LOs and COs (if applicable) covered within the period of assessment</b> such as prelim, midterm, final.
4. An assessment that follows the principles of OBE should cover the <b>skill development indicative of outcomes or results</b> .
5. When constructing/developing/writing the practical/performance test which involves activities/exercises/scenarios <b>be guided by the ToS which has been made aligned with the COs and LOs of the course</b> . The <b>Taxonomy for Psychomotor Domain</b> (refer to "Taxonomies of Learning Outcomes" attached to this ToS) can guide you in choosing the <b>appropriate indicator/category/criterion to be used in addressing the learning and or course outcomes to be assessed/measured</b> .
6. A <b>rubric</b> should be constructed to assess accordingly the <b>demonstration of skill/s shown by the student before/during/after the execution of the activity/exercise/scenario</b> . The Taxonomy for Psychomotor Domain suggests the criteria that may be considered for the rubric such as speed, precision, distance, procedures or techniques in execution. MHEI may use other <b>criteria depending on the LO to be assessed/measured</b> .



## TABLE OF SPECIFICATIONS FOR AFFECTIVE LEARNING OF THE COURSE

Competence:

**Course Outcome 1:**  
**Course Outcome 2:**



AFFECTIVE DOMAIN OF LEARNING

Source: Krathwohl et al. 1973

#### TABLE OF SPECIFICATIONS FOR BEHAVIOR DEVELOPMENT OF THE COURSE:

## **Competence:**

Guttmann-Guttmann 1

Course Outcome I:

INSTITUTE

1. Enter the required data on the title of the course, the competence/s to be developed in the course (Ref: Part II. DTS), and **Course Outcome/s that is focused on behavior development** (Ref: Part II. DTS)
  2. Fill out the columns and rows of the ToS. If the course has only one (1) CO, you may remove the Course Outcome in the table since the said CO is already written above the table.

2.1 Ensure that you **write the CO that corresponds to/being addressed by every LO that is focused on behavior development** (Ref: Part II. DTS).

2.2 Write the **LO**, begin it with its **active verb** (Ref: Part II. DTS). LOs must have been aligned with the CO in the DTS as they are meant to build up the learning that will enable the student to realize the CO.



- 2.3 Write the number/code of the Assessment Activity/Exercise/Scenario that you are planning to develop/construct under the **indicators/categories/criteria of behavior development you have chosen to measure the LO**. After the table, list down the same number/code of the Assessment Activity/Exercise/Scenario with its descriptive title. This title should be reflective of the LO that is intended to be assessed/measured.
- 2.4 Remember that Outcomes-Based assessment will always be focused on the **results as indicated in the LO**. You may refer to the Affective Domain of the Taxonomies of Learning Outcomes attached to this ToS for your guidance on the meaning and coverage of the indicators/categories/criteria shown on the table above.
- 2.5 It is best that you assign **at least 3 Activities/Exercises/Scenarios for every LO and every possible indicator of behavior development that can measure the LO**. This will enable you to assess the student's **consistency of learning** across a certain period of lecture/laboratory instruction and assessment such as prelim, midterm, and final period. These Activities/Exercises/Scenarios may be the same Activities/Exercises/Scenarios being used for skill assessment. Your difference will be on the **construct and contents of the rubrics** to be used in the assessment process.
- 2.6 The "**Total No. of Activities**" refers to the sum of the activities/exercises/ scenarios made per LO across the covered indicators/categories/criteria of behavior development.
- 2.7 The "**% of Activities**" represents the ratio of the total no. of activities across all indicators/categories/criteria of a particular LO overall the total no. of Activities/Exercises/Scenarios of the course. Hence, it is computed by simply dividing the total no. of activities of the LO by the total no. of all activities of the course, multiplied by 100.
3. Take note that the no. of indicative hours written in the DTS is written as "indicative" as this no. of hour/s to be spent in conducting the activity/exercise depends on the **learning capacity and ability of the students and the available quantity of facility, tools, or materials for the activity**. Hence, it is not being used as a metric to determine the no.of activities/exercises/scenarios to be given in the practical/performance test. Bear in mind that **the practical/performance test should be able to assess ALL the LOs and COs (if applicable) covered within the period of assessment** such as prelim, midterm, final.
4. An assessment that follows the principles of OBE should cover the **behavior development indicative of outcomes or results**.
5. When constructing/developing/writing the practical/performance test which involves activities/exercises/scenarios, **be guided by the ToS which has been made aligned with the COs and LOs of the course**. The **Taxonomy for Affective Domain** (refer to "Taxonomies of Learning Outcomes" attached to this ToS) can guide you in choosing the **appropriate indicator/category/criterion to be used in addressing the learning and or course outcomes to be assessed/measured**.
6. A **rubric** should be constructed to assess accordingly the **behavior, attitude, valuing, and other attributes shown by the student before/during/after the execution** of the activity/exercise/scenario. The Taxonomy for Affective Domain defines each indicator of behavior development. From the said definition, you may **extract the criteria that you can use for the rubric which should address the LO to be assessed/measured**.

Student Name: \_\_\_\_\_

Year/Section: \_\_\_\_\_

Date:

**PERFORMANCE/PRACTICAL TEST/ASSESSMENT TEMPLATE**

Document Name	PERFORMANCE ASSESSMENT/PRACTICAL TEST
Document No.	
Course Code	
Course Descriptive Title	
STCW Complied	
Competence/s	
KUP/s	
CO/s Statement	
LO/s Statement	
Category of Skill Learning	
To be assessed	
Title of the Activity	
Safety Briefing	
Scenario	
Initial Condition of the Activity	
Allocation of Time/Duration	
Resources Required	
Briefing on the Activity	
Procedure of the Activity	
Condition/s for Stopping the Activity	
Assessment Guide and Rubrics	
Debriefing	
Lesson Learned	
Realization of Outcome	



**RUBRICS FOR PERFORMANCE/PRACTICAL ASSESSMENT****A. ANALYTICAL RUBRIC****When to use:**

- Several faculty are collectively assessing student work output. Descriptions promote consistent scoring.
- Outside people will be examining rubric scores. Substantial feedback to students or faculty is desired.
- Profiles of specific strengths/weaknesses are desired.

**Sample:**

<b>CRITERIA</b>	<b>BEGINNING (1 point)</b>	<b>DEVELOPING (2 points)</b>	<b>ACCOMPLISHED (3 points)</b>	<b>EXEMPLARY (4 points)</b>	<b>SCORE</b>
<b>Length of Time Covered</b>	Description reflecting beginning level of performance	Description reflecting movement toward mastery level of performance	Description reflecting achievement of mastery level of performance	Description reflecting highest level of performance	
<b>Accuracy of Length</b>	Description reflecting beginning level of performance	Description reflecting movement toward mastery level of performance	Description reflecting achievement of mastery level of performance	Description reflecting highest level of performance	
<b>Accuracy of Materials used</b>	Description reflecting beginning level of performance	Description reflecting movement toward mastery level of performance	Description reflecting achievement of mastery level of performance	Description reflecting highest level of performance	
<b>Welding Penetration</b>	Description reflecting beginning level of performance	Description reflecting movement toward mastery level of performance	Description reflecting achievement of mastery level of performance	Description reflecting highest level of performance	

**Template:**

<b>CRITERIA</b>	<b>BEGINNING (1 point)</b>	<b>DEVELOPING (2 points)</b>	<b>ACCOMPLISHED (3 points)</b>	<b>EXEMPLARY (4 points)</b>	<b>SCORE</b>



## B. HOLISTIC RUBRIC

### When to use:

- There is no single correct answer/response to a task (e.g. a creative work).
- The focus is on overall quality, proficiency, or understanding of a specific content or skills.
- The assessment is summative, i.e. at the end of a semester.
- You are assessing so many students (e.g. 100 or more work outputs).

### Sample:

SCORE	DESCRIPTION
5	Demonstrate complete understanding of the problem. All requirements of the task are included in the response.
4	Demonstrate considerable understanding of the problem. All requirements of the task are included in the response.
3	Demonstrate partial understanding of the problem. Most requirements of the task are included in the response.
2	Demonstrate little understanding of the problem. Many requirements of the task are missing.
1	Demonstrate no understanding of the problem.
0	No response/task not attempted.

### Template:

SCORE	DESCRIPTION
5	
4	
3	
2	
1	
0	

Student Name: \_\_\_\_\_ Year/Section: \_\_\_\_\_ Date: \_\_\_\_\_

Course Code/Descriptive Title: \_\_\_\_\_

Category of the Skill Learning Assessed: \_\_\_\_\_

Title of the Activity: \_\_\_\_\_

Statement of Course/Learning Outcome Assessed: \_\_\_\_\_

Rubric:

CRITERIA	BEGINNING (1 point)	DEVELOPING (2 points)	ACCOMPLISHED (3 points)	EXEMPLARY (4 points)	SCORE



### **SAMPLE RUBRIC FOR ASSESSMENT OF AFFECTIVE LEARNING/BEHAVIOR DEVELOPMENT**

<b>CRITERIA</b>	<b>0 point</b>	<b>BEGINNING 1 point</b>	<b>DEVELOPING 2 points</b>	<b>EXEMPLARY 3 points</b>	<b>SCORE</b>
<b>Directions/Rules</b>	Student did not follow directions/rules. Student needed 5+ corrective measures	Student followed few directions/rules and needed Student needed 3-4 corrective measures	Student followed most directions/rules. and needed Student needed 1-2 corrective measures	Student followed directions/rules. and needed Student needed 1-2 corrective measures	
<b>Attention</b>	Student did not pay attention at all in class today. Instructions need to be repeated frequently	Student wandered physically/mentally and instructions sometimes needed to be repeated.	Student paid attention in class but needed more complicated tasks clarified. Student was actually on the task.	Student paid attention in class and stayed on the task.	
<b>Conflict</b>	Student did not get along with others. Student was argumentative and/or defensive. Student was loud and disruptive.	Student got along with others some of the time. May have been defensive or argumentative. Student was sometimes loud and disruptive. Student was loud and disruptive	Student got along well with others and was flexible. Student made a conscious effort to avoid being disruptive.	Student got along well with others and was congenial. Student followed directions and did not disrupt class.	
<b>Performance</b>	Student did not put forth quality efforts and made many excuses.	Student's work/effort was inconsistent. Student tried to find ways to get around doing assigned work.	Student work/effort was reflective of his abilities and effort.	Student's work ethic was exemplary. Student put in extra effort to do well.	

### **TEMPLATE**

<b>CRITERIA</b>	<b>0 point</b>	<b>BEGINNING 1 point</b>	<b>DEVELOPING 2 points</b>	<b>EXEMPLARY 3 points</b>	<b>SCORE</b>



**Annex G**  
*(Course Outcomes assessment and Assessment Tools)*

**Student Name:** \_\_\_\_\_

**Year/Section:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Course Code/Descriptive Title:** \_\_\_\_\_

**Category of the Behavioral Learning Assessed:** \_\_\_\_\_

**Title of the Activity:** \_\_\_\_\_

**Statement of Course/Learning Outcome Assessed:** \_\_\_\_\_

**Rubric:**

<b>CRITERIA</b>	0 point	<b>BEGINNING</b> 1 point	<b>DEVELOPING</b> 2 points	<b>EXEMPLARY</b> 3 points	<b>SCORE</b>



### SAMPLE RUBRIC FOR ASSESSMENT OF ORAL PRESENTATION/RESPONSES

<b>CRITERIA</b>	<b>EXCELLENT</b> 4 points	<b>GOOD</b> 3 points	<b>FAIR</b> 2 points	<b>NEEDS IMPROVEMENT</b> 1 point	<b>SCORE</b>
<b>Delivery</b>	Student did not follow directions/ rules. Student needed 5+ corrective measures	Student followed few directions/ rules and needed Student needed 3-4 corrective measures	Student followed most directions/ rules. and needed Student needed 1-2 corrective measures	Student followed directions/rules. and needed Student needed 1-2 corrective measures	
<b>Content/ Organization</b>	Student did not pay attention at all in class today. Instructions need to be repeated frequently	Student wandered physically/mentally and instructions sometimes needed to be repeated.	Student paid attention in class but needed more complicated tasks clarified. Student was actually on the task.	Student paid attention in class and stayed on the task.	
<b>Enthusiasm/ Audience Awareness</b>	Student did not get along with others. Student was argumentative and/or defensive. Student was loud and disruptive.	Student got along with others some of the time. May have been defensive or argumentative. Student was sometimes loud and disruptive. Student was loud and disruptive	Student got along well with others and was flexible. Student made a conscious effort to avoid being disruptive.	Student got along well with others and was congenial. Student followed directions and did not disrupt class.	
<b>Comments:</b>					

### TEMPLATE

<b>CRITERIA</b>	<b>EXCELLENT</b> 4 points	<b>GOOD</b> 3 points	<b>FAIR</b> 2 points	<b>NEEDS IMPROVEMENT</b> 1 point	<b>SCORE</b>
<b>Comments:</b>					



**Student Name:** \_\_\_\_\_

**Year/Section:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Course Code/Descriptive Title:** \_\_\_\_\_

**Category of the Learning being assessed orally:** \_\_\_\_\_

**Title of the Activity:** \_\_\_\_\_

**Statement of Course/Learning Outcome Assessed:** \_\_\_\_\_

**Rubric:**

<b>CRITERIA</b>	<b>EXCELLENT</b> 4 points	<b>GOOD</b> 3 points	<b>FAIR</b> 2 points	<b>NEEDS IMPROVEMENT</b> 1 point	<b>SCORE</b>
<b>Comments:</b>					



## SAMPLE OF ASSESSMENT GUIDE / ASSESSMENT PLAN

Assessment Guide/Plan				
<b>Course Code - Descriptive Title:</b>				
<b>Statement of Outcome</b>	<b>Assessment Criteria</b>	<b>Assessment Method</b>	<b>Assessment Activity</b>	<b>List of Evidence/s</b>
LO 1:		Demonstration	Role Play on Teambuilding	Completed Checklist
CO 1:		Observation	Conduct of Station Meeting	Rubric on Behavior Assessment
		Oral/Practical/Project	Project Presentation	Rubric for Oral Assessment
		Historical/Indirect Research	Case Study on Oil Tanker Accidents	Rubric for Performance Assessment
		Written Test Administration	Final Examination	Marked Test Papers

**What to write in the table:**

**Assessment Criteria** – qualities, characteristics, and aspects of an assessment task that will be used to measure the attainment of the learning/course outcome

**Assessment Method** – How will the evidence/s of competence be gathered? (e.g. interview, observation, etc.)

**Assessment Activity** - What will be used to gather the evidence/s ( e.g. interview questions, observation checklist, journal, etc.)

**Evidence/s** – Proof that should be kept which support the results of assessment

## TEMPLATE OF ASSESSMENT GUIDE / ASSESSMENT PLAN

Assessment Guide/Plan				
<b>Course Code - Descriptive Title:</b>				
<b>Statement of Outcome</b>	<b>Assessment Criteria</b>	<b>Assessment Method</b>	<b>Assessment Activity</b>	<b>List of Evidence/s</b>



Annex G  
*(Course Outcomes assessment and Assessment Tools)*

Assessor's Name: \_\_\_\_\_

Semester/AY: \_\_\_\_\_

STCW Complied: \_\_\_\_\_

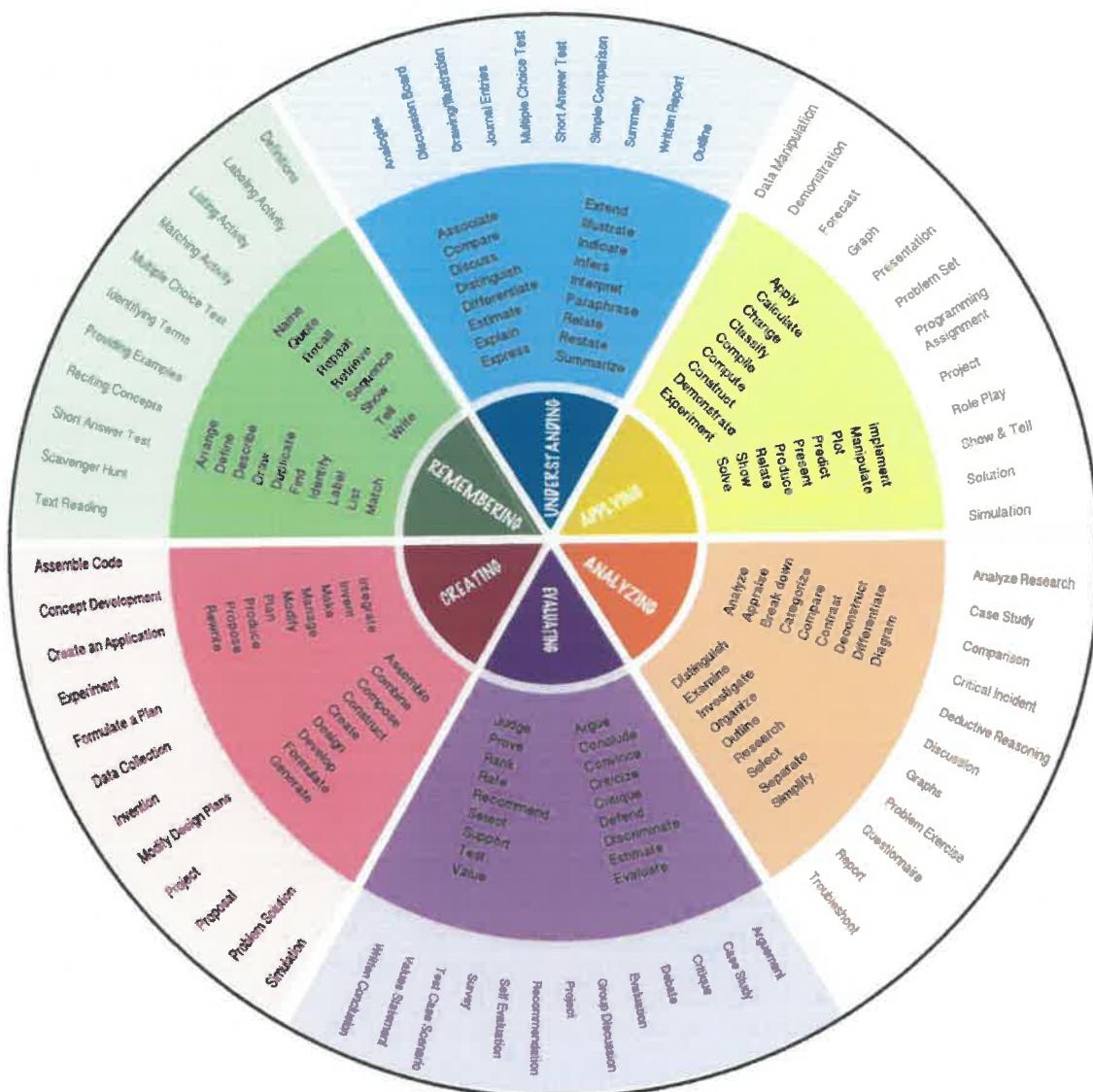
Competence for Assessment: \_\_\_\_\_

KUPs: \_\_\_\_\_

Assessment Guide/Plan				
Course Code - Descriptive Title:				
Statements of Outcome	Assessment Criteria	Assessment Method	Assessment Activity	List of Evidence/s



**Annex G**  
*(Course Outcomes assessment and Assessment Tools)*





## I. Table of Specifications (ToS)

### A. Cognitive learning

#### INSTRUCTIONS:

1. Enter the required data on the title of the course, the competence/s to be developed in the course (Ref: Part II. DTS), and Course Outcome/s (Ref: Part II. DTS)
2. Fill out the columns and rows of the ToS. If the course has only one (1) CO, you may remove the Course Outcome in the table since the said CO is already written above the table.
- 2.1 Ensure that you **write the CO that corresponds to/being addressed by every LO** (Ref: Part II. DTS).
- 2.2 Write the LO, begin it with its **active verb** (Ref: Part II. DTS). LOs must have been aligned with the CO in the DTS as they are meant to build up the learning that will enable the student to realize the CO.
- 2.3 Write the number of the test items you are planning to develop/construct **under the indicator/criterion/ category of intellectual development that will measure the LO**. As seen in the sample above, there are 5 test questions that will be made: 2 are under "Applying" the formula of speed, and 3 questions will be made on "Analyzing" word problems to compute for the speed of the ship.
- 2.4 Remember that Outcomes-Based assessment will always be focused on the **results as indicated in the LO**. Such test items may fall under "Applying to Creating." You may include in your ToS the test items for formative assessment which usually are falling under "Remembering and Understanding."
- 2.5 It is best that you assign at **least 3 test items for every LO and every possible indicator of intellectual development targeted by the LO**. This will enable you to assess the student's **consistency of learning** across a certain period of academic instruction and assessment such as prelim, midterm, and final period.
- 2.6 The "**Total No. of Items**" refers to the sum of the test questions made per LO across all indicators of intellectual development.
- 2.7 The "**% of Items**" represents the ratio of the total test items of a particular LO overall the total test items of the course. Hence, it is computed by simply dividing the total no. of test items of the LO by the total no. of all test items of the course, multiplied by 100.



**Annex G**  
*(Course Outcomes assessment and Assessment Tools)*

3. Take note that the no. of indicative hours written in the DTS is written as "indicative" as this no. of hour/s to be spent in teaching the topic/lesson **depends on the learning capacity and ability of the students**. Hence, it is not being used as a metric to determine the no. of test items to be given in a test. Bear in mind that **the test should be able to assess ALL the LOs and COs (if applicable) covered within the period of assessment** such as prelim, midterm, final.
4. An assessment that follows the principles of OBE should cover the **intellectual development indicative of outcomes or results**.
5. When constructing/developing/writing the test items, **be guided by the ToS which has been made aligned with the COs and LOs of the course**. The revised Bloom's Taxonomy (refer to "Taxonomies of Learning Outcomes" attached to this ToS) can guide you in choosing the active verb/s to be used under each indicator **shown in the completed ToS for Intellectual Development**.

## TABLE OF SPECIFICATIONS FOR INTELLECTUAL DEVELOPMENT OF THE COURSE:

## Competence:

### **Course Outcome 1:**

## **Course Outcome 2:**

Course Outcome (CO)	Learning Outcome (LO)	Topic	Levels of Intellectual Development				% of Item
			Remembering	Understanding	Applying	Evaluating	
CO1	Compute the speed of the ship	Acceleration			1, 2	3, 4, 5	5

## B. Psychomotor learning

### INSTRUCTIONS:

1. Enter the required data on the title of the course, the competence/s to be developed in the course (Ref: Part II. DTS), and **Course Outcome/s that is focused on skill development** (Ref: Part II. DTS)
2. Fill out the columns and rows of the ToS. If the course has only one (1) CO, you may remove the Course Outcome in the table since the said CO is already written above the table.
- 2.1 Ensure that you **write the CO that corresponds to/being addressed by every LO that is focused on skill development** (Ref: Part II. DTS).
- 2.2 Write the **LO**, begin it with its **active verb** (Ref: Part II. DTS). LOs must have been aligned with the CO in the DTS as they are meant to build up the learning that will enable the student to realize the CO.
- 2.3 Write the number/code of the Assessment Activity/Exercise/Scenario that you are planning to develop/construct **under the indicators/categories/criteria of skill development that you have chosen to measure the LO**. After the table, list down the same number/code of the Assessment Activity/Exercise/Scenario with its descriptive title. This title should be reflective of the LO that is intended to be assessed/measured. The format of the Code depends on the QSS of the MHEI.
- 2.4 Remember that Outcomes-Based assessment will always be focused on the **results as indicated in the LO**. You may refer to the Psychomotor Domain of the Taxonomies of Learning Outcomes attached to this ToS for your guidance on the meaning and coverage of the indicators/categories/criteria shown on the table above.
- 2.5 It is best that you assign **at least 3 Activities/Exercises/Scenarios for every LO and every possible indicator of skill development that can measure the LO**. This will enable you to assess the student's **consistency of learning** across a certain period of laboratory instruction and assessment such as prelim, midterm, and final period.
- 2.6 The "**Total No. of Activities**" refers to the sum of the activities/exercises/ scenarios made per LO across the covered indicators/categories/criteria of skill development.
- 2.7 The "**% of Activities**" represents the ratio of the total no. of activities across all indicators/categories/criteria of a particular LO overall the total no. of Activities/Exercises/Scenarios of the course. Hence, it is computed by simply dividing the total no. of activities of the LO by the total no. of all activities of the course, multiplied by 100.



**Annex G**  
*(Course Outcomes assessment and Assessment Tools)*

3. Take note that the no. of indicative hours written in the DTS is written as "indicative " as this no. of hour/s to be spent in conducting the activity/exercise **depends on the learning capacity and ability of the students and the available quantity of facility, tools, or materials for the activity**. Hence, it is not being used as a metric to determine the no.of activities/exercises/scenarios to be given in the practical/performance test. Bear in mind that **the practical/performance test should be able to assess ALL the LOs and COs (if applicable) covered within the period of assessment** such as prelim, midterm, final.
4. An assessment that follows the principles of OBE should cover the **skill development indicative of outcomes or results**.
5. When constructing/developing/writing the practical/performance test which involves activities/exercises/scenarios, **be guided by the ToS which has been made aligned with the COs and LOs of the course**. The **Taxonomy for Psychomotor Domain** (refer to "Taxonomies of Learning Outcomes" attached to this ToS) can guide you in choosing the **appropriate indicator/category/criterion to be used in addressing the learning and or course outcomes to be assessed/measured**.
6. A rubric should be constructed to assess accordingly the **demonstration of skill/s shown by the student before/during/after the execution** of the activity/exercise/scenario. The Taxonomy for Psychomotor Domain suggests the criteria that may be considered for the rubric such as speed, precision, distance, procedures or techniques in execution. MHEI may use other **criteria depending on the LO to be assessed/measured**.

**Annex G**  
*(Course Outcomes assessment and Assessment Tools)*



**TABLE OF SPECIFICATIONS FOR SKILL DEVELOPMENT OF THE COURSE:**

**Competence:**

**Course Outcome 1:**

**Course Outcome 2:**

Course Outcome (CO)	Learning Outcome (LO)	Topic	Levels of Skill Development					Total No. of Activities	% of Activities
			Perception	Set	Guided Response	Mechanism	Expert Response		



### C. Affective learning

#### INSTRUCTIONS:

1. Enter the required data on the title of the course, the competence/s to be developed in the course (Ref: Part II. DTS), and **Course Outcome/s that is focused on behavior development** (Ref: Part II. DTS)
2. Fill out the columns and rows of the ToS. If the course has only one (1) CO, you may remove the Course Outcome in the table since the said CO is already written above the table.
- 2.1 Ensure that you **write the CO that corresponds to/being addressed by every LO that is focused on behavior development** (Ref: Part II. DTS).
- 2.2 Write the **LO**, begin it with its **active verb** (Ref: Part II. DTS). LOs must have been aligned with the CO in the DTS as they are meant to build up the learning that will enable the student to realize the CO.
- 2.3 Write the number/code of the Assessment Activity/Exercise/Scenario that you are planning to develop/construct **under the indicators/categories/criteria of behavior development you have chosen to measure the LO**. After the table, list down the same number/code of the Assessment Activity/Exercise/Scenario with its descriptive title. This title should be reflective of the LO that is intended to be assessed/measured.
- 2.4 Remember that Outcomes-Based assessment will always be focused on the **results as indicated in the LO**. You may refer to the Affective Domain of the Taxonomies of Learning Outcomes attached to this ToS for your guidance on the meaning and coverage of the indicators/categories/criteria shown on the table above.
- 2.5 It is best that you assign **at least 3 Activities/Exercises/Scenarios for every LO and every possible indicator of behavior development that can measure the LO**. This will enable you to assess the student's **consistency of learning** across a certain period of lecture/laboratory instruction and assessment such as prelim, midterm, and final period. These Activities/Exercises/Scenarios may be the same Activities/Exercises/Scenarios being used for skill assessment. Your difference will be on the **construct and contents of the rubrics** to be used in the assessment process.
- 2.6 The "Total No. of Activities" refers to the sum of the activities/exercises/ scenarios made per LO across the covered indicators/categories/criteria of behavior development.

**Annex G**  
*(Course Outcomes assessment and Assessment Tools)*



- 2.7 The "**% of Activities**" represents the ratio of the total no. of activities across all indicators/categories/criteria of a particular LO overall the total no. of Activities/Exercises/Scenarios of the course. Hence, it is computed by simply dividing the total no. of activities of the LO by the total no. of all activities of the course, multiplied by 100.
3. Take note that the no. of indicative hours written in the DTS is written as "indicative" as this no. of hour/s to be spent in conducting the activity/exercise depends on the **learning capacity and ability of the students and the available quantity of facility, tools, or materials for the activity**. Hence, it is not being used as a metric to determine the no.of activities/exercises/scenarios to be given in the practical/performance test. Bear in mind that **the practical/performance test should be able to assess ALL the LOs and COs (if applicable) covered within the period of assessment** such as prelim, midterm, final.
4. An assessment that follows the principles of OBE should cover the **behavior development indicative of outcomes or results**.
5. When constructing/developing/writing the practical/performance test which involves activities/exercises/scenarios, **be guided by the TOS which has been made aligned with the COs and LOs of the course**. The **Taxonomy for Affective Domain** (refer to "Taxonomies of Learning Outcomes" attached to this TOS) can guide you in choosing the **appropriate indicator/category/criterion to be used in addressing the learning and or course outcomes to be assessed/measured**.
6. A rubric should be constructed to assess accordingly the **behavior, attitude, valuing, and other attributes shown by the student before/during/after the execution** of the activity/exercise/scenario. The Taxonomy for Affective Domain defines each indicator of behavior development. From the said definition, you may **extract the criteria that you can use for the rubric which should address the LO to be assessed/measured**.

## *Annex G (Course Outcomes assessment and Assessment Tools)*

TABLE OF SPECIFICATIONS FOR BEHAVIOR DEVELOPMENT OF THE COURSE:

## Competence:

## Course Outcome 1:

Course Outcome 2:



## **Part II. Table of Outcome Assessment (Course Outcome Assessment and Related Competences)**

There are three (3) types of assessment, Assessment to determine the preparedness of the learner (Pre-test), Assessment for Learning (Formative) and Assessment of Learning, (Summative).

The Table of Outcome Assessment (TOA) is a summative assessment designed to evaluate the achievement of the learner at the end of the delivery. Assessment is by the use of "authentic assessment tool"; these are actual problems and issues encountered or actual activities perform by the seafarer in the work place.

### **Procedure and General Requirements**

1. Select the Course Outcomes from the defined COs to be assessed
2. Identify the STCW competence and KUP address as per Table A-III/1-2 for BSMARE (Table A-II/1 BSMT)
  - a. Defines: expectations, coverage and criteria for evaluating achievement
  - b. Identifies elements of competence that must be acquired as a prerequisite, example: starting electric motor is acquired prior to operating the pumps
3. Identify Domain addressed: Cognitive - Psychomotor- Affective
4. Identify Elements and Attributes of the Competence/Outcome
  - a. While this is predefined in the template, the MHEI may add additional attributes of the competence that they believe must be acquired by the learner
5. Prepare Authentic Assessment Tool for each element and domain as applicable
  - a. Cognitive or theoretical assessment (assess the Knowledge and Understanding)
  - b. Psychomotor or practical assessment (assess the Proficiency)
  - c. Affective or behavioral assessment (embedded within the psychomotor activity)
6. Check and ensure the alignment with STCW regulations I/6, I/8 and I/12
  - a. Regulation I/6: Training and Assessment (Approved MET, to ensure alignment between Outcomes-Learning-Assessment)
  - b. Regulation I/8: Quality Standards (competence standards that must be met and the performance standards are identified)
  - c. Regulation I/12: Use of simulators (use of simulators in assessment)

7. Check and ensure the alignment of Instrument to performance criteria as per Table A-III/1-2 Column 4 for BSMARE, and Table A-II/1 Column 4 for BSMT
8. Check and ensure the alignment of Performance Standard with Performance Criteria
9. Fill up the templates
  - a. Template for the Assessment of **Knowledge and Understanding** (Cognitive domain)
  - b. Template for the Assessment of **Proficiency** (Psychomotor and Affective domain)

### **Assessment of Knowledge and Understanding (Cognitive domain)**

#### **Encoding Template for Assessment of Knowledge and Understanding**

Row 1: Encode the Course

Row 2: Encode the STCW Competence addressed by the authentic assessment tools

Row 3: Encode the STCW Competence-KUP addressed by the authentic assessment tools

Row 4: Encode the pre-requisite that must be acquired

Row 5: Encode the Course Outcome to be assessed

Row 6: pre-defined "Cognitive Elements/Attributes of the Competence-Outcomes to be Assessed"

Row 7: pre-defined "Understanding Visual Information, Procedural, Applied Math and Sciences, Analysis and Troubleshooting" as necessary attributes that must be assessed.

Row 8: Encode here the Performance Criteria as found in STCW Table AII/1-2 C4, (STCW Table AII/1 C4 BSMT)

Column 1: Performance Criteria as applicable to Understanding Visual Information

Column 2: Performance Criteria as applicable to Procedural aspect of the assessment

Column 3: Performance Criteria as applicable to Applied Math and Sciences

Column 4: Performance Criteria as applicable to Analysis aspect of the assessment

Column 5: Performance Criteria as applicable to Troubleshooting aspect of the assessment

Row 9: Under each element/attribute, encode here the authentic assessment tool ensuring that all attributes of the competence are addressed. Take note that several attributes can be assessed in a single instrument.  
Authentic assessment instruments are actual problems and issues encountered by the seafarer in the work place.





Row 14: pre-defined, Signature line for the developer, the reviewer and the approving authority

**Note:**

- a. Level of difficulty is the integration of several attributes into a single instrument i.e., the number of thought processes that must be accomplished to solve the problem.  
Example, troubleshooting instrument: You installed a new centrifugal closed impeller, during recommissioning the pumping rate is below specifications, discounting the mechanical drive and piping system, troubleshoot the problem?

To solve the problem the candidate must first determine the cause of failure, then come up with the steps to return the pumping system to optimum conditions.

- b. For the candidate to pass the assessment, the candidate answer (response) must meet Performance Standards
- c. The Performance Standards must be aligned to the Performance Criteria as found in STCW Table AII/1-2 for BSMARE (STCW Table AII/1 BSMT)
- d. Performance Standards (the correct answer) may be different to every examinee as the data could be manipulated by the assessor to ensure academic integrity.

Example, Applied Math and Science instrument: Calculate the time to fill a specific tank to 90% capacity base on pump curve?  
To effect different correct answers, the questions with respect to a) tank dimensions b) fill capacity and c) pump curve are different for each examinee.



**Template: Assessment of the Knowledge and Understanding (KU) of the competence via authentic assessment tool,  
(Cognitive domain)**

Course Outcome to be Assessed:						Cognitive Elements/Attributes of the Competence-Outcomes to be Assessed			
Understanding Visual Information		Procedural		Applied Math & Science		Analysis		Troubleshooting	
Performance Criteria as per STCW Table All/1-2 C4		Performance Criteria as per STCW Table All/1-2 C4		Performance Criteria as per STCW Table All/1-2 C4		Performance Criteria as per STCW Table All/1-2 C4		Performance Criteria as per STCW Table All/1-2 C4	
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
2. Authentic assessment tools	2. Authentic assessment tools	2. Authentic assessment tools	2. Authentic assessment tools	2. Authentic assessment tools	2. Authentic assessment tools	2. Authentic assessment tools	2. Authentic assessment tools	2. Authentic assessment tools	2. Authentic assessment tools
3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
5.	5.	5.	5.	5.	5.	5.	5.	5.	5.

Developed by: \_\_\_\_\_

Reviewed by: \_\_\_\_\_

Approved by: \_\_\_\_\_

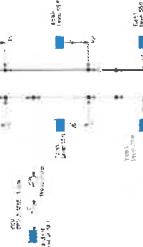
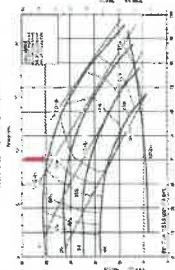


**Table of Outcome Assessment sample: BSMARE Auxiliary Machinery 1 – CO2**

**Author:** C/E Rodolfo D. Paiso  
**Assessment of the Knowledge and Understanding (KU) of the competence via authentic assessment tool (Cognitive domain)**

<b>Course: Auxiliary Machinery 1</b>			
<b>STCW Competence Addressed:</b> Table A-II/1 F1- C4, C5; A-III/1 F3: C2; A-III/1 F2 C1, C2; A-III/1 F4 C1			
<b>KUP Addressed:</b> F1 C4 KUP .1, .4, .6,.9 F1 C5 KUP .1, .2; F3: C2 KUP 1; F2 C1 KUP 1.1 .c, F2 C2 KUP 1, 2; F4 C1 KUP 1, 2			
<b>Pre-requisite:</b> Draw, Electro 3			
<b>CO2: Operate ballast and pumping system according to ship's piping system configuration</b>			
<b>Cognitive Elements/Attributes of the Competence-Outcomes to be Assessed</b>			
<b>Understanding Visual Information</b>	<b>Procedural</b>	<b>Applied Math and Science</b>	<b>Analysis</b>
Construction and operating mechanisms can be understood and explained with drawings/instructions	Operations are planned and carried out in accordance with operating manuals, established rules and procedures to ensure safety of operations and avoid pollution of the marine environment	The output of plant and engineering systems consistently meets requirements The stability conditions comply with the IMO intact stability criteria under all conditions of loading	The output of plant and engineering systems consistently meets requirements Deviations from the norm are promptly identified and appropriate action is taken
Interpret the ballast diagram of MV GSO base on ISO nomenclature and or DNVGL-RU-	Describe how to transfer liquid from 2 similarly size tanks with tank A at 90% full to tank B presently empty, assuming that all housing when	Based on ship installed pump size/capacity, calculate temperature rise of water in pump	Pump is running with positive suction head, then failed to pump (with pump still running), assuming the load of the pump



<b>SHIP Pt.4 Ch.6. standards?</b> 	<p>valves are closed using a centrifugal pump in accordance to ship manual?</p>	<p>centrifugal pump discharge valve was closed for 2 minutes? B is still close?</p>	<p>when you start the pump with the discharge valve to tank B is still close?</p>	<p>mechanical and electrical components are okay, trouble shoot the problem by describing the steps to take to return to normal service?</p>
<b>With the use of a pump curve, calculate discharge pressure required to fill a particular tank at a certain elevated height and time constraints?</b> <b>(Visual + Math &amp; Science)</b> 	<p>Describe pump system manipulation procedure to empty a cargo tank in accordance with shipboard practice?</p>	<p>Calculate cycling interval of a hydropore system based on pressureat settings and hydropore tank size?</p>	<p>Explain the mechanics of water hammer and its effect to the piping system?</p>	<p>The condensate return tank is found to contain oil, what steps would you take to identify the source of contamination?</p>
	<p>Describe the sequence of events when starting the ship main air compressor as per manufacturer specifications or shipboard practice?</p>	<p>When two cylindrical tanks of similar volume and elevation are filled up, Tank A from the top while Tank B from the bottom by same size pumps, which tank will be filled up first?</p>	<p>Differentiate the installation of a positive type pump as against centrifugal pump when used as a bilge pump and explain the rationale?</p>	<p>The Chief Engineer told you that the running fire pump has internal liquid recirculation, troubleshoot the problem by describing the corrective measures to stop internal liquid recirculation?</p>
	<p>Differentiate the starting procedure of a centrifugal pump compared to a positive displacement pump based on manufacturer's instructions?</p>	<p>Air inside the bottle is 1m<sup>3</sup> N; Calculate water volume that would leave a 2 m<sup>3</sup> hydropore tank with a 3 bar setpoint and 2-bar differential setting with pump not running.?</p>	<p>The ships new progressive cavity pump fails to pump, on inspection the rotor and/or stator are worn, other than factory defect, what is the main reason for the pump not running.?</p>	<p>You installed a new centrifugal closed impeller, during recommissioning the pumping rate is below specifications, discounting the mechanical drive and</p>

**Annex G**  
*(Course Outcomes assessment and Assessment Tools)*

<b>4. Steam piping 5. Fuel system</b>  Explain the cause of impeller damaged as per picture shown?	 Describe the step-by-step procedure of replacing a pump mechanical seal?  Calculate the time to fill a specific tank to 90% capacity base on pump curve?	Describe the step-by-step procedure of replacing a pump packing seal?  Calculate the time to fill a specific tank to 90% capacity based on As-Built condition?	early pump failure?  When the pump is started, the stuffing gland started to smoke, explain the reason behind the rise in temperature and the absence of hull breach, ballast operation & shifting of cargo; what could be the reason for the slight list to starboard?
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Developed by:

Reviewed by:

Approved by:





**Assessment of Proficiency**  
(Psychomotor and Affective domain)

**Encoding Template for Assessment of Proficiency**

Row 1: Encode the Course Descriptive Title

Row 2: Encode the Learning Outcome to be assessed

Row 3: Encode the STCW Competence addressed by the authentic assessment tools

Row 4: Encode the STCW Competence-KUP addressed by the authentic assessment tools

Row 5: Encode here the Task or the title of the psychomotor activity reflective to actual practice aboard ship

Row 6: Encode here the authentic assessment tools

Authentic assessment tools are actual activities perform by the marine engineering officer in the work place.

Row 7: Encode here the venue where the activity will be held

Row 8: Encode here the Equipment and Materials Required for the activity

Row 9: pre-defined "Performance Criteria as found under STCW III/1 F3 Column 4 BSMARE"

Row 10: pre-defined "Elements/Attributes of the Competence-Outcomes to be Assessed"

Row 11: pre-defined "Safety, Procedural, Results" as necessary attributes that must be assessed

Row 12: Encode here the Performance Criteria as found in STCW Table AlII/1-2 C4 aligned to the competence

Column 1: Performance Criteria as applicable to Safety aspect of the assessment

Column 2: Performance Criteria as applicable to Procedural aspect of the assessment

Column 3: Performance Criteria as applicable to Results aspect of the assessment

Row 13: pre-defined, "Performance Standards as per SMS, industry best practice or manufacturers manual aligned to Performance Criteria"

Row 14: pre-defined- to be determined by the Assessor

Column 1: Is the safety of the candidate and those around him including the environment compromised during the activity?

Column 2: Were all the steps in \_\_\_\_\_ activity \_\_\_\_\_ as stated in the manual, followed?

Column 3: Is the result of \_\_\_\_\_ activity \_\_\_\_\_ meets manufacturer or stakeholders' requirements?

Row 15: Encode here the Performance standards that must be meet by the candidate to pass

Column 1: Encode here the necessary steps to ensure safety of the activities

Column 2: Encode here the procedures as found in the manual or SMS



*Annex G*  
*(Course Outcomes assessment and Assessment Tools)*

Column 3: Encode here the actual data specified by the manufacturer after a successful activity  
Row 20: pre-defined, Signature line for the developer, the reviewer and the approving authority



**Template: Assessment of Proficiency (P) of the competence via authentic assessment tool, addressing the Psychomotor and Affective domain**

<b>Course Descriptive Title:</b>																																																				
<b>Learning Outcome:</b>																																																				
<b>STCW Competence Addressed:</b>																																																				
<b>STCW KUP Addressed:</b>																																																				
<b>Task:</b>																																																				
<b>Authentic Assessment Tools:</b>																																																				
<b>Assessment Venue:</b>																																																				
<b>Equipment and Materials Required:</b>																																																				
<table border="1"> <thead> <tr> <th colspan="2">Performance Criteria as found under STCW III/1 F3 Column 4</th> <th colspan="3">Proficiency Elements/Attributes of the Competence-Outcome to be Assessed</th> <th rowspan="2">Result</th> </tr> <tr> <th>Safety</th> <th>Procedural</th> <th>Performance Criteria</th> <th>Performance Criteria</th> <th>Performance Criteria</th> </tr> </thead> <tbody> <tr> <td colspan="2"><b>Performance Standards as per SMS, industry best practice or manufacturers manual aligned to Performance Criteria</b></td> <td colspan="3">Is the safety of the candidate and those around him including the environment compromised during the activity?</td> <td>Is the result of meets manufacturer or stakeholders' requirements?</td> </tr> <tr> <td colspan="2">1.</td> <td colspan="3">Were all the steps in _____ as stated in the manual, followed?</td> <td>1.</td> </tr> <tr> <td colspan="2">2. Performance Standards</td> <td colspan="3">2. Performance Standards</td> <td>2. Performance Standards</td> </tr> <tr> <td colspan="2">3.</td> <td colspan="3">3.</td> <td>3.</td> </tr> <tr> <td colspan="2">4.</td> <td colspan="3">4.</td> <td>4.</td> </tr> <tr> <td colspan="2">5.</td> <td colspan="3">5.</td> <td>5.</td> </tr> </tbody> </table>						Performance Criteria as found under STCW III/1 F3 Column 4		Proficiency Elements/Attributes of the Competence-Outcome to be Assessed			Result	Safety	Procedural	Performance Criteria	Performance Criteria	Performance Criteria	<b>Performance Standards as per SMS, industry best practice or manufacturers manual aligned to Performance Criteria</b>		Is the safety of the candidate and those around him including the environment compromised during the activity?			Is the result of meets manufacturer or stakeholders' requirements?	1.		Were all the steps in _____ as stated in the manual, followed?			1.	2. Performance Standards		2. Performance Standards			2. Performance Standards	3.		3.			3.	4.		4.			4.	5.		5.			5.
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5.		5.			5.																																															
<b>Developed by:</b> _____	<b>Reviewed by:</b> _____																																																			
<b>Approved by:</b> _____																																																				



**Table of Outcomes Assessment Sample: BSMARE Maintenance and Repair**

**Author: C/E Rodolfo D. Paiso**  
**Assessment of Proficiency (P) of the competence via authentic assessment tool, (Psychomotor and Affective domain)**

<b>Course: Maintenance and Repair</b>	
<b>Learning Outcome:</b> Given a fuel injection valve, tester, tools and manual, the student will be able to set/adjust the fuel valve opening in 40 minutes within specifications as prescribed by the manufacturer	
<b>STCW Competence:</b> A-III/1. F3.C2: Maintenance & repair of shipboard machinery & equipment	
<b>STCW KUP:</b> KUP3-Maintenance and repair, such as dismantling, adjustment and reassembling of machinery and equipment	
<b>Task: Calibration of Fuel Valve</b>	
<b>Assessment Instrument:</b> Given a fuel injection valve, tester, tools and manual, set/adjust the fuel valve opening in 40 minutes within specifications as prescribed by the manufacturer?	
<b>Assessment Venue:</b> Vessel Training Center	
<b>Equipment &amp; Materials Required:</b> Fuel injection valve, tester, tools and manual of Yanmar model 6CXM-GTE/2 marine engine	
<b>Performance Criteria as per STCW III/1 F3 Column 4</b>	
<b>Proficiency Elements/Attributes of the Competence-Outcomes to be Assessed</b>	
Safety	Procedural
Safety procedures followed are appropriate	Dismantling, inspecting, repairing and reassembling equipment is in accordance with manuals and good practice
<b>Performance Standards as per SMS, industry best practice or manufacturers manual aligned to Performance Criteria</b>	
<b>Is the safety of the candidate and those around him including the environment compromised?</b>	
1. Candidate PPE suitable for the activity 2. No ignition source within 3 meters radius, work environment relatively	
Were all the steps in calibrating the fuel valve as stated in the manual, followed?	
1. Look up the opening pressure in the manual. 2. Connect the fuel valve to the tester.	
Specific to Yanmar model 6CXM-GTE/2 marine • Torque of spring lock, 99 Nm	



**Annex G**  
*(Course Outcomes assessment and Assessment Tools)*

clean, secure and safe.	3. Work piece properly assembled and no loose piece or equipment that potentially may cause an accident	3. Fill up tester and bleed connection. 4. Build up pressure by slow movement of pump lever. 5. Visually check system for oil droplets prior to set pressure.	• Torque of cap, 225 Nm • Opening pressure 240 bar +/- 5 bar • Spray injection angle 155 degrees • Number of spray orifice 6 • No sharp angle deviation • No fuel dripping before & after atomization • Uniform atomized fuel • Time completed (40 minutes or less)
4. Fuel valve enclosed in a protective shield to ensure that the ejected fuel will stay within the confined space	6. Pop test the fuel valve at design pressure	7. Re-adjust opening pressure as necessary	
5. Candidate does not horse around (playing with the equipment)	8. Conduct jet and buzzing test	9. Visually check spray pattern	

**Developed by:** \_\_\_\_\_ **Reviewed by:** \_\_\_\_\_ **Approved by:** \_\_\_\_\_



# BSMT Program

## Example for

### Identifying Attributes and or Elements of Competences “performance criteria”

### as per STCW Table A-II/1 Column 4

**Course: Celestial Navigation**

**Competence: Plan and conduct a passage and determine position**

**KUP: Ability to use celestial bodies to determine the ship's position**

**Attributes/Elements for both Cognitive (Lecture) and Psychomotor (Laboratory) for assessment of Knowledge and Understanding (KU) and Proficiency (P)**



## Attributes/Elements of Competence

## Performance Criteria

### Understanding Visual Information



- Ex. Lecture: Hazard in the chart are identified and interpreted.  
Ex. Lab: Hazards in the instrument and sea display are identified and interpreted.

1

### Position Fixing



- Ex. Lecture Assessment 1: You are transiting Gibraltar strait, explain the best way to fix ship's position?  
Ex. Lab Assessment 1/3: Simulator exercise, observed the candidate what instrument he used and frequency in fixing his vessel position, assessor will then ask during de-briefing why he used that method?

2

3

### Applied Math and Science



### Forward bias / Updating information



### Procedural





### Function: Navigation at the operational level

Column 1 Competence	Column 2 Knowledge, understanding and proficiency	Column 3 Methods for demonstrating competence	Column 4 Criteria for evaluating competence
Plan and conduct a passage and determine position	<i>Celestial navigation</i> Ability to use celestial bodies to determine the ship's position	Examination and assessment of evidence obtained from one or more of the following: 1 approved in-service experience 2 approved training ship experience 3 approved simulator training, where appropriate 4 approved laboratory equipment training	The information obtained from nautical charts and publications is relevant, interpreted correctly and properly applied. All potential navigational hazards are accurately identified
	<i>Terrestrial and coastal navigation</i> Ability to determine the ship's position by use of: 1 landmarks 2 aids to navigation, including lighthouses, beacons and buoys 3 dead reckoning, taking into account winds, tides, currents and estimated speed	using chart catalogues, charts, nautical publications, radio navigational warnings, sextant, azimuth mirror, electronic navigation equipment, echo-sounding equipment, compass	The primary method of fixing the ship's position is the most appropriate to the prevailing circumstances and conditions
			The position is determined within the limits of acceptable instrument/system errors
			The reliability of the information obtained from the primary method of position fixing is checked at appropriate intervals
			Calculations and measurements of navigational information are accurate
			The charts selected are the largest scale suitable for the area of navigation, and charts and publications are corrected in accordance with the latest information available
	<i>Electronic systems of position fixing and navigation</i> Ability to determine the ship's position by use of electronic navigational aids	Thorough knowledge of and ability to use nautical charts, and publications, such as sailing directions, tide tables, notices to mariners, radio navigational warnings and ships' routing information	Performance checks and tests to navigation systems comply with manufacturer's recommendations and good navigational practice
	<i>Echo-sounders</i> Ability to operate the equipment and apply the information correctly		